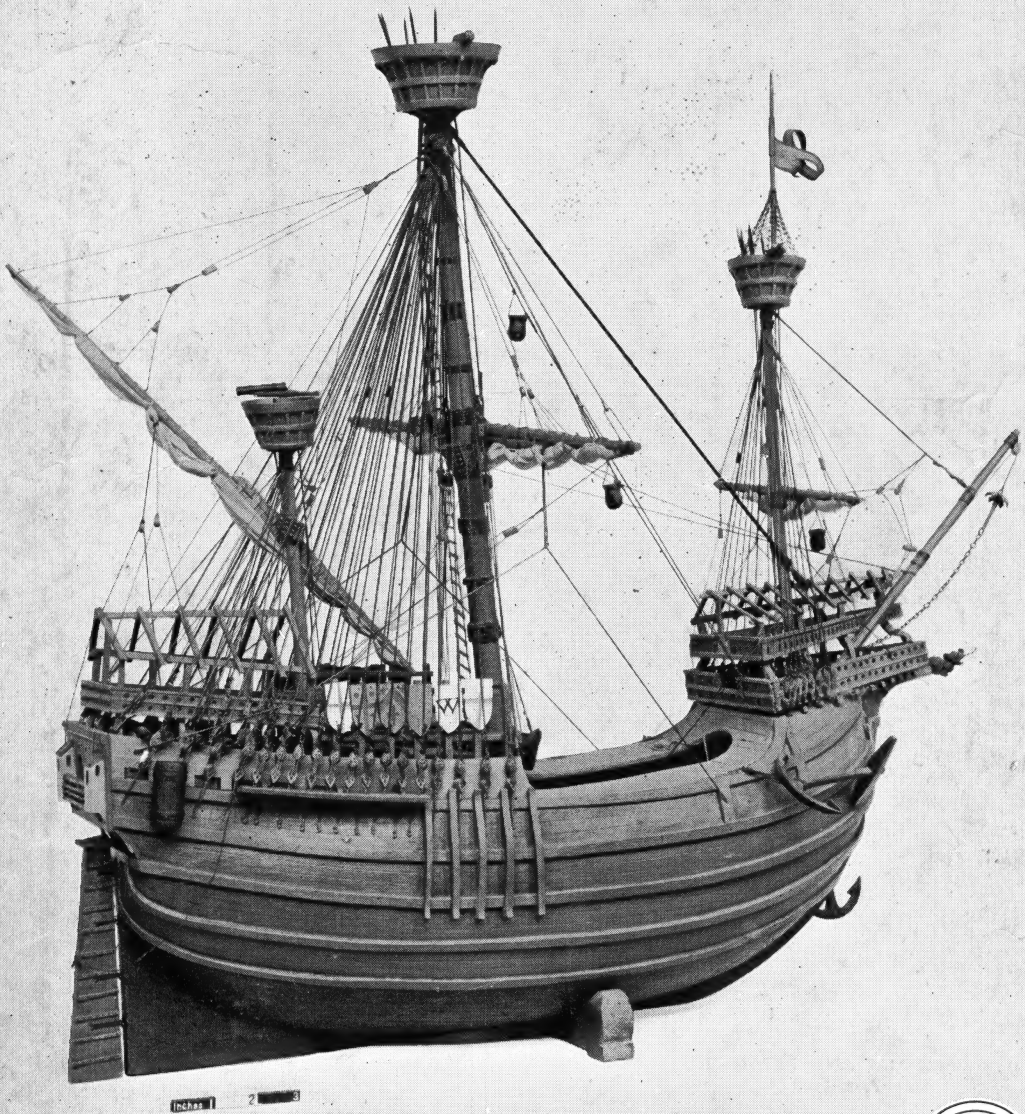
MODEL SHIPS *and* POWER BOATS

JANUARY 1950



A PERCIVAL MARSHALL PUBLICATION

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Model Ships and Power Boats

VOL. 3 No. 25 *Editor ; Edward Bowness* JANUARY, 1950

PERCIVAL MARSHALL & CO. LTD. 23 GREAT QUEEN ST. LONDON W.C.2

Contents

The Ship's Log

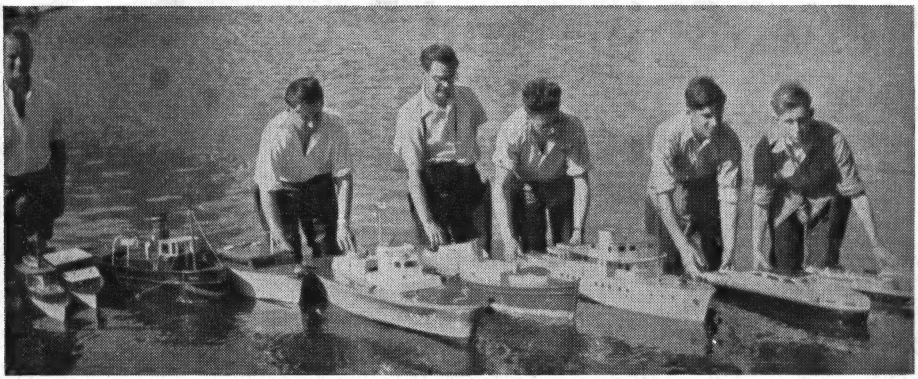
OUR COVER PICTURE this month is reproduced from a photograph of the model of a Flemish Carrack (*c.* 1480) made by Mr. Morton Nance, and which is now in the Science Museum, South Kensington. The series of articles by Mr. Millward at present running in our magazine is based on this model, and those who are interested will find it very useful as a guide to the rigging of the model. Mr. Nance's model was built from a contemporary print by a Flemish artist and the builder has followed the print implicitly. As a consequence the hull is probably somewhat deeper than that of the actual ship. Other features which may have been exaggerated by the artist are the large number of shrouds on the mainmast and the somewhat undue prominence given to the skids amidships. The relatively large size of the mainmast as compared with the fore and mizzen indicates that the ship is not far removed from the single-masted ship with the one square sail. Several features about the ship indicate her Mediterranean origin and this model has at times been described as a Genoese Carrack. The photograph is reproduced by permission of R. Morton Nance, Esq.

H.M.S. Amethyst

H.M.S. *Amethyst* has been very much in the news of late. I wonder how many of our readers saw the model of her which was on view in the windows of the *Daily Telegraph* during the latter part of November. This was made by Mr. A. D. Trollope, well known to readers of our magazine, and the designer of a number of the prototype models in our lists, in collaboration with his colleague Mr. J. B. Glossop. It was a lovely piece of work and the innumerable deck details were faithfully portrayed. The clean, smart lines of the hull were also very noticeable. Some historical references to previous *Amethysts* were included in *The Times* for November 1st, 1949. In 1808, a 36-gun frigate *Amethyst* outfought and carried by boarding the French 40-gun frigate *Thetis* in a night action off Ile de Croix. (A water colour of this action, by Nicholas Pocock, is in the National Maritime Museum, and was reproduced in this issue of *The Times*.) This *Amethyst* took part in the Walcheren expedition of 1809, and was lost two years later in a gale in Plymouth Sound. The fourth *Amethyst*, a 26-gun corvette distinguished herself in the Second China War, and afterwards intervened in disturbances in Mexico. The fifth *Amethyst* a 14-gun screw corvette, took part in the Ashantee War.

Television

We have been given to understand that the B.B.C. hope to commence a series of demonstrations in the television programme in January, illustrating the actual building of a model yacht. The model will probably be one of the smaller classes to interest the beginner, but all builders of model yachts will find something of interest in the series.



MODEL MARINE POWER PLANTS

by *Edgar T. Westbury*

THE choice of an engine or other form of propulsive power unit is always a matter of paramount importance to the constructor of any form of model power boat, as the success of the boat is influenced not only by the efficiency of the power unit, but also its suitability for the particular type of craft. It is well that this matter should be given due consideration from the outset when planning the construction of the boat, for although there are many types of hulls which are suitable for the installation of two or three different types of engines, it may happen, on the other hand, that severe limitations in the choice of power plant are imposed by the restricted dimensions of the hull and superstructure. It is by no means uncommon to find boats fitted with obviously unsuitable power plants, which sometimes look as if they have been installed with a shoe-horn, and often necessitate drastic alterations to the hull structure, or unsightly bulges in deck casings, which frustrate all attempts at fidelity to prototype design.

Almost every known form of motive power has been used with some degree of success for propelling model boats, including stored mechanical energy in the form of clockwork or twisted rubber, compressed air, electric motors, and heat engines, comprising the steam engine in all its many and varied forms, hot air engines, and internal combustion engines. It may even be said that wind power has been applied successfully to the mechanical propulsion of boats, in the form of windmills—a method which is not without precedent in full size practice—but one may question whether a craft so propelled should properly be classed as a power boat or a sailing ship !

It may be mentioned that the very simple forms of power plants have never attained any considerable popularity among model power boat constructors, though they have been fairly extensively exploited in commercially-made toys. (I trust it will not be necessary to enter here into the question of exact definitions, or the distinction between " models " and " toys.") But simple methods should not be condemned merely because they *are* simple ; utility and efficiency are not necessarily rated in proportion to elaboration. It is often found, however, that the simple power units have definite limitations which render them unsuitable for serious purposes.

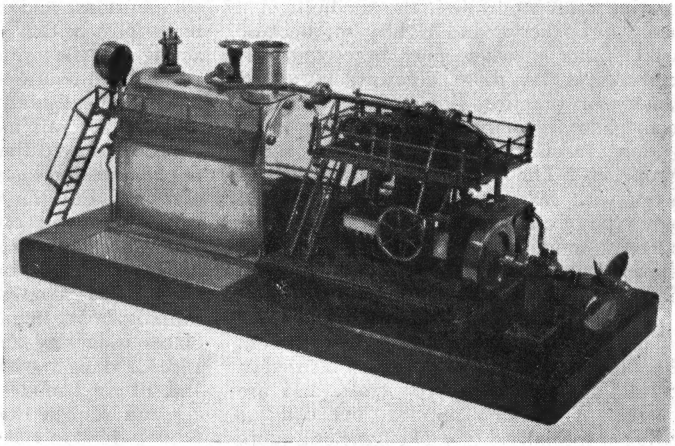
Quite apart from actual utility of the power plant, and its suitability for the particular type of boat, there is another very important consideration—it must be *interesting*. This aspect is sometimes neglected by the constructor who regards the power plant merely as a means to an end, but a moment's reflection will prove the logic of this contention ; none of us would ever start to build a model of any type unless we regarded it as an object of interest, and this obviously applies not only to the exterior appearance, or even its performance, but to every feature of its construction. Even if we do not build the power plant, we owe it not only to ourselves but to all our fraternity to make it as interesting as possible, by selecting a power plant which is a pleasure to behold and an adventure to run. Model engineering is not, as some would have us believe, an

entirely self-centred hobby ; a good model gives pleasure not only to its owner, in its design, construction and working, but to all who have an opportunity of inspecting it, either on exhibition or in action. For this reason, the conscientious constructor will consider every means of making his model interesting from the broadest possible point of view.

Model power boats have always been regarded as among the most interesting types of models, one of their greatest attractions being the infinite variety which is possible in their design—greater, I think, than that which can be offered by any other specific type of working model. Most of the enthusiasts who visit model power boat regattas are not only interested to see the boats in action, but also to examine and discuss the details of their propulsive mechanism. A boat, however well built and finished, or efficient in performance, is always vaguely disappointing if there is nothing of interest down the engine room hatch ; and it may be observed, for the benefit of prospective constructors, that this point of view is not confined to casual observers—it applies equally to exhibition judges, who often have to devaluate what appears superficially to be an obvious prize-winner, for this reason.

In this review of model marine power plants, it is my aim to assist the constructor in the choice of engines and their auxiliary equipment, rather than to give exact technical details, or instructions on how to build them. These matters have been fully dealt with in *The Model Engineer*, and in many cases it will be possible to refer readers to articles therein, relating to actual engines mentioned, or to detailed blueprints and other information essential to the constructor. In pursuance of my general policy in these matters, I recommend the model power boat enthusiast to build his own engine wherever possible, mainly because it is the one and only way to obtain the maximum satisfaction from his hobby. There are, admittedly, more difficulties in constructing engines than hulls ; they call for more elaborate tool equipment and facilities, but the greater the difficulty, the greater the joy of achievement, and no model engineer worthy of the name expects to find everything easy. I am quite certain that some of the constructors who have devoted much skill and ingenuity to fashioning non-working metal fittings for boats, would be quite capable of building engines, even with very limited tool equipment. The design and construction of engines can, to some extent at least, be accommodated to the facilities available, and where possible hints will be given on how to make the best use of ways and means; but in the last resort, this must inevitably depend on individual initiative and resourcefulness.

The ready-made power plant will not be left out of consideration, as there is a popular demand for information on the installation of the many types of power units now readily available, and suitable, more or less, for boat propulsion. I certainly have no wish to deprecate the usefulness of these engines ; they are often a very excellent means to the desired end, though their users can never capture the thrill which is experienced by the constructor who builds his own engine, however poor and inefficient it may be. Human nature being what it is, the user of a ready-made engine is often vaguely conscious of something lacking, and occa-



An example of a realistic prototype marine steam engine and boiler, exhibited at the 1949 "M.E." Exhibition, by Mr. T. Spike, of Topsham

sionally develops a subconscious antagonism to those who build their own engines. Whatever else happens, I beg of my readers to be on their guard against this, because the surest way of killing interest in any form of model engineering is to allow any breach to occur in the friendship and harmony among its devotees.

Messrs. Curtis and Chew of the Victoria M.S.C. with their petrol-driven tugs *Wortha* and *Irande*, true prototype models of tugs plying regularly in the London docks and river

The beginner in model power boat construction often buys a ready-made engine for his first boat, with the intention of using it as an introduction to the handling of engines, and building his own engine afterwards. But from my experience in these matters, this rarely works out, because the possession of an engine in working order teaches one nothing of construction, and often delays and deters embarkation on a new and uncertain venture. If you are going to build an engine at all, do it right away.

Methods of Applying Power

The most popular method of applying mechanical power to the propulsion of marine craft is through the medium of a screw propeller ; and rightly so, because while other methods may in certain circumstances be more efficient, either in theory or practice, none of them are so convenient, or so flexible for working under widely varying conditions, as the screw propeller. The latter can be designed to work with reasonable efficiency in almost any type of craft, and over a wide range of speeds ; moreover, it can be coupled to and driven from various types of engines, with the minimum mechanical complication.

There are, however, other possible methods of propulsion which deserve consideration. Paddle wheels may appropriately be used in certain types of prototype craft, and are efficient if properly applied, but call for either a specialised type of engine or a more complex system of mechanical transmission. The more modern mechanical alternatives to the screw propeller, such as the Zodel-Voith feathering propeller, have not been applied to any great extent in models, so far as is known, but some of them offer great possibilities to anyone prepared to experiment with them.

Jet propulsion, which has been applied with success to both the simplest and most advanced types of craft, often enables mechanical power, in the accepted sense, to be eliminated altogether, and for this reason, often appeals to the non-mechanical enthusiast who seeks only a means of attaining quick results. These are by no means so easy to attain as they may seem, however, and both in respect of their scope of application and general interest are much more restricted than mechanical methods of propulsion.

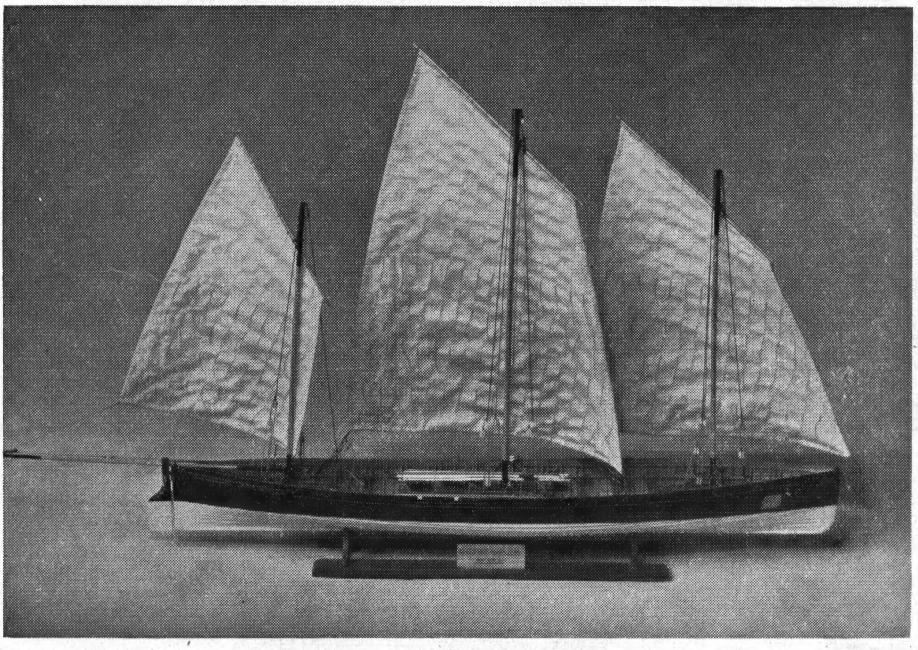
It may be appropriate to point out here that for various reasons, concerned mainly with insurance, and noise, the Model Power Boat Association have found it necessary to ban jet motors from their competitions, and have stipulated that all boats must be driven by mechanical means, acting on the water. This, incidentally, precludes the use of airscrew propulsion, but practically any of the methods used on full-size craft are permissible. It may also be observed that boats driven by internal combustion engines must be fitted with silencers, and the same applies to steam engines if the exhaust is noisy. Such regulations as this may appear irksome to the experimenter, but they are not adopted just to be awkward ; the privilege of running boats in public parks and similar places is largely dependent on the avoidance of danger or nuisance to the public, and all good model engineers will appreciate and respect this.

(*To be continued*)

OLD-TIME COASTAL CRAFT No. 6

The Yarmouth Yawl

by *L. H. Foster*



THE first record of the yawls, and the organised companies which ran them, as they existed in their later days, is an account of a rescue in a gale of wind in 1770.

The yawls and their hoveller crews made their living by supplying the needs of shipping using the Roads, assistance to vessels in distress, salvage, setting off pilots, and the general duties of a shore boat. They were not used for fishing.

Formerly Yarmouth Roads, together with Sole Bay, formed the most crowded anchorage in the kingdom. On April 3rd 1843, 700 windbound ships were brought up in Sole Bay. On one day in 1890, after a long spell of northerly wind, 110 were counted there.

The middle of the 19th century saw the peak of the yawls' activity. After that, the supplanting of sailing ships by steamers, steam tugs, and the concentration of all the North Channel pilots in one station at Harwich, gradually destroyed their trade, and by the early years of the 20th century they had disappeared.

Until the latter half of the 19th century they were three-masted luggers about 50 to 70 ft. long, manned by a crew of 30 men or so, according to requirements.

About the 1850's the two-master began to supersede the three-master and then the type remained virtually unchanged until the end.

The companies which owned them were gangs of 100 or so longshoremen, and might own two or three yawls, and a couple of long, narrow six- or eight-oared rowing gigs. They had their lookout and store in a shed on the beach, which also served as a club.

At one time there were seven companies at Gt. Yarmouth, four at Lowestoft, and three at Southwold.

Each company's profits were pooled and shared out amongst the members.

They worked in the keenest competition, and their regattas aroused great public interest both along the coast and in villages far inland.

The crews were consummate seamen and took their boats out in the wildest weather. Like most longshoremen they had a bad name for wresting an unconscionable bargain from shipping in distress. On the other hand, some of the most stirring tales in their history, of seamanship, endurance, and reckless courage, are records of life saving.

The yawls were to be found along the coast from Brancaster to Aldeburgh, but Caistor, Gt. Yarmouth, Lowestoft and Southwold were the chief centres.

They were the fastest open boats ever built, speeds of 16 knots being authenticated. Lightly built, they used to wring in a seaway and were very wet, men being constantly employed baling. They could be pressed until the sea level was 6 in. or so above the lee gunwale, with only a trickle of water coming aboard on account of the boat's speed.

Large crews were necessary to sail and row them, and their handling required great skill and perfect teamwork.

The best men in the boat, with helpers, attended to the fore and main sheets, which were not made fast, but constantly checked or rounded to assist steering, or meet approaching seas. In very bad weather the main mast was unshipped.

The yawls were kept on the beach, bow seaward, and could be got off in about ten minutes. On a flat beach like Gt. Yarmouth they were run down on roller skids by a crowd of helpers who waded into the sea and gave the last shove off with a long pole called a "sett." On a steep beach like that at Aldeburgh, the sternfast was knocked out and the boat slid down on greased planks, being kept upright by a crowd of men running alongside. They were rowed through the surf and sail set when clear of the breakers.

Capstans were used for hauling out and they were swung round ready for another launch on a skid mounted on a turntable.

This model of the well-known *Royal Sovereign* of the 1860's is based primarily on the model of her in the Tolhouse Museum at Gt. Yarmouth, which, however, shows only the general arrangement and no details. They had to be gathered from various sources.

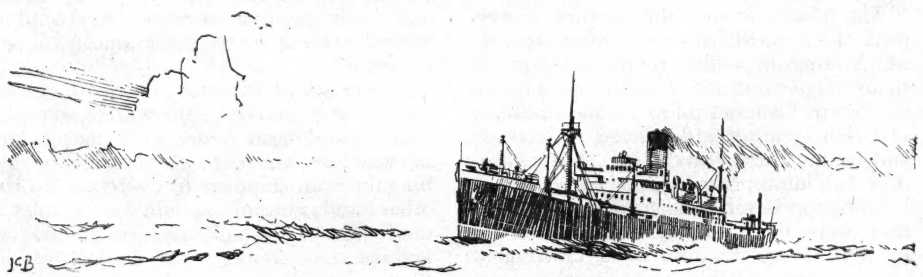
The sails in the model are set as if full of wind which exaggerates, in the photograph, the rounding of the leaches. The rounding, if any, would be only slight.

Also, as the main lug would not have been set at all in bad weather, it is unlikely to have had as many rows of reef points as the fore lug, and all but two have been taken out since the photograph was taken.

The model was made by the writer and is to the scale of 1 : 38 ($\frac{5}{16}$ in. to 1 ft.).

A NEW MODEL SPEED-BOAT RECORD

WE were recently informed by Mr. K. Williams of the Bournville Model Yacht and Power Boat Club, that his boat *Faro* set up yet another new Class "A" record of 56.8 m.p.h. for 500 yds. at Bournville on November 19th. This record claim has been submitted to the committee of the M.P.B.A., and we understand that, after due examination, it has been accepted, and may therefore be taken as official. *Faro* is one of the veterans of the model speed boat world, both the engine and the hull having been built long before the war, and it represents a good object lesson in the possibilities of some of the older boats to hold their own against those of much more modern design and construction. An article on the construction of *Faro* was published in the issues of *The Model Engineer* dated 12th, 19th and 26th May, 1949, in which Mr. Williams refers to the many trials and setbacks which have been encountered in the development of the boat from a comparatively modest speed to record-breaking performance. We commend this record of patience and perseverence to the many beginners who are inclined to get very disappointed if success does not immediately crown their efforts. To the true model engineer, however, difficulties only add zest to the pursuit of high efficiency, and success, when it eventually comes, is all the more satisfying for having been so hardly won.



Radio Control of Model Yachts

An original and interesting suggestion from

WING COMMANDER J. F. LEWIS

UNDER the heading " The Ship's Log " in the September issue of MODEL SHIPS AND POWER BOATS, I read a paragraph referring to the use of wireless control in model racing yachts.

My excuse for writing on this subject is that some 15 or 20 years ago I built a 10-rater and raced it across the Solent from Yarmouth to the mouth of the Lymington River. My keeness for the sport has in no way been blunted by lack of opportunity to indulge in it since those days, and whenever, for my sins, I am in London for a weekend the Round Pond draws me like a magnet.

Now the Round Pond is notorious for its tricky winds and I have seen well-known " helmsmen " made to look like the veriest tyros at the game.

I agree that a man who knows his water and the winds that ruffle its surface can, to a certain extent, so trim his sails and set his Braine or vane gear as to steer his boat on a very good course when running. But, and it is a big but, how often does even the expert watch with sinking heart and/or rising words, while she falls away and finally has to be restarted from the bank half-way up the course. These things can and do happen even on courses where the wind is mostly dead true.

Let me anticipate the various exclamations of disgust that, like Mr. and Mrs. Piddington, I can feel surging up towards me in waves big enough to wreck a " J " class let alone an " A " class.

I will ask the diehards a question. Why is a crew necessary on a full size yacht? I'll ask another. Why is it impossible to set a balloon jib on a model racing yacht?

These two questions answer themselves. On the big yacht the balloon jib can be sheeted home after a tack because there is a crew to do it. On the model it might be done once by a rubber contraption, but only once. Why not be able to do it at will?

The installation of a control mechanism in a model racing yacht would not only add enormously to the skill of the game, but would add very greatly to its pleasure.

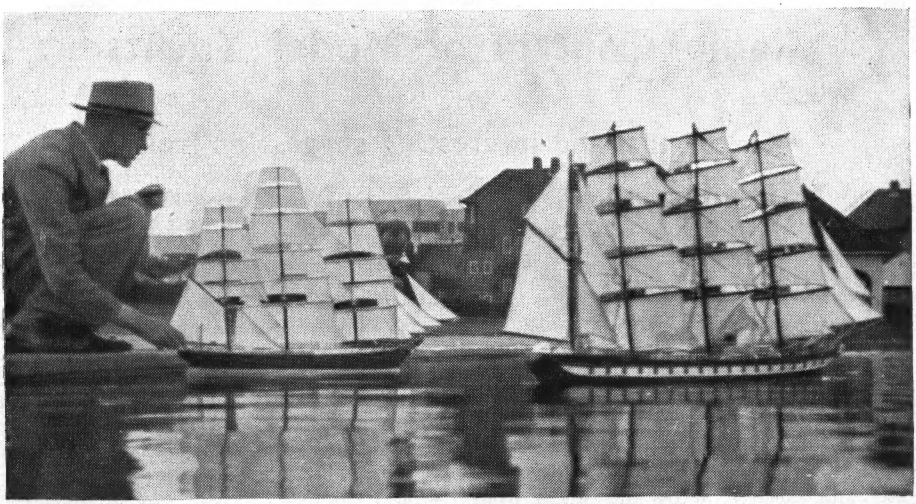
When the purists condemn the idea of mechanically controlling their yachts, I say roundly that they are splitting hairs. What is the Braine gear but a piece of mechanism. Substitute a clock spring for your rubber, and what have you got? When you come to the Vane steering gear—well, I ask you! I saw one of the latest examples at the recent " Model Engineer " Exhibition and what with toothed quadrants, etc. etc., if ever I saw a piece of mechanism there it was. Anyway it's hideous to look at.

It is said that criticism, when destructive, should always lead to a constructive conclusion. Let us then shake hands all round to show there is no ill feeling, and see what might happen if mechanism were permitted in model yacht racing.

Wireless control has, I imagine, the greatest scope and the greatest appeal. Here the helmsman could indulge in all the manoeuvres and tricks known to his big brother and executed by means of the crew. Courses would be triangular as in sea racing and the spectacle of six or more " A " class or 10-raters racing on such a course would be a thing of beauty and a joy for ever. This form of control, however, is at the moment ruled out because of the small wavelength band that can be used.

Pneumatic control occurs to me to be a distinct possibility. Surely some ingenious soul can devise a set of pistons actuated by the heel of the boat to control rudder and sail setting. Quite a large compressed air cylinder could be installed in the larger boats, and as with wireless everything would be below decks. Clockwork, too, might be used. Weight, of course, would have to be kept as low as possible. If the sailing men say they are not blacksmiths, why not an alliance?

At least let us have views. Ideas on the pros and cons; then perhaps one day I may go to the Round Pond and watch a yacht make light of its tricky airs and currents and sail exactly where its owner wills and not at the will of the elements.



*ENCHANTRESS a sailing model clipper

by G. F. MURRAY BUTCHER

An efficient steering gear is an indispensable feature of a working model. In the writer's opinion, the Braine gear familiar to model yachtsmen, is not altogether suitable for a square-rigger, since the obvious sail to actuate it—the spanker—is comparatively small, and in any case ought to be furled when sailing with the wind aft. It was therefore decided to try out the possibilities of the vane steering gear, which was reintroduced on racing craft some years before the war.

The rudder is constructed model-yacht fashion, with a wooden blade screwed to a hollow brass stock and carried on a single needle-point bearing at the heel of the sternpost, a slotted quadrant being bolted to the upper end of the rudder stock protruding above deck. When used on racing sloops the vane gear is mounted on the centreline well aft of the rudder head, but since there is no room in such a position on a ship model, a position on the weather side of the poop was adopted. Sockets are provided on each quarter, slightly forward of the rudder head, for the pintle on which the vane gear itself swings, the pintle always being shipped on the weather side, and shifted over when going about. This gear itself consists of a brass tube " A," to the base of which the disc " B " is silver-soldered. The upper end of tube " A " is bushed, and forms the bearing for the pintle " C." The rim of the disc " B " is drilled with 64 holes, allowing for adjustments at intervals of half-points of the compass.

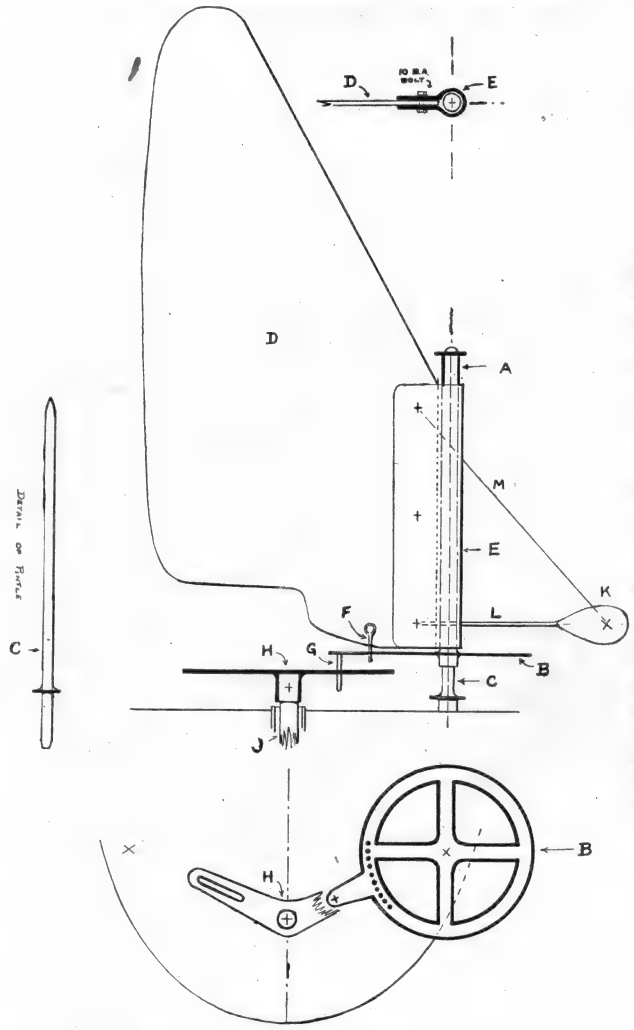
The vane feather " D " is attached to " A " by the sleeve " E " ; both these parts are of colourless celluloid. A saving in weight could have been effected by making the feather of balsa but colourless celluloid has been used as it is less unsightly than a wooden feather would be. The angle of the feather can be adjusted as required by lifting " D " and " E " up " A " until the locking pin " F " (which is fixed to the vane " D ") disengages from a hole in disc " B," turning the feather, and then dropping " F " into a fresh hole.

The entire vane assembly swings on the pintle " C," and the rudder is actuated by the link pin " G " sliding in a slot in the rudder quadrant " H," which is bolted to the top of the rudder post, " J." " K " is a lead counterweight carried on an outrigger " L," and supported by the wire " M." The rudder quadrant is symmetrical but part of the starboard side has been omitted in the sketch for the sake of clarity.

The shape of the vane feather is governed by the need for it to swing clear of the mizzen royal backstay when running ;

*Concluded from our December issue, page 186

The illustration at the head of this page shows *Enchantress* with a rival, *Flying Cloud*, sailing on the lagoon at Hove, Sussex



Model yachtsmen who use other forms of vane gear may be interested in the following data :—

Area of vane feather, 16.25 sq. in.

Area of rudder, 6.5 sq. in.

Distance between centres of rotation, 1.8 in.

Distance of link pin from centre of vane pintle, 1.25 in.

The ratio of vane area to rudder area is only $2\frac{1}{2}$: 1, a considerably lower value than is used on model yachts, but the deep, narrow rudder of a ship-model is perhaps more easily turned than the normal model-yacht shape.

part of the foot has been cut away to clear the spanker boom when the sail has been taken in and the spar hauled amidships, and the height of the feather is limited by the position of the spanker gaff.

For the benefit of the uninitiated, I would explain that vane steering gears operate on the principle of the weathercock. Before the start of a board the skipper decides the direction of the wind and adjusts the angle of the vane so that when the model is on its intended course the vane will be edge to wind and the rudder amidships. If the model, after it has left the bank, yaws off course, the vane will present one or other of its sides to the wind, and the pressure exerted will tend to turn the vane back to its edge-to-wind position. In doing so the rudder will be turned in the direction necessary to steer the model back on her course, the vane will then resume its original position, and the rudder will be steadied amidships.

The position of the vane is far from ideal as the feather is probably exposed to wind eddying out of the spanker under some conditions, but nevertheless it appears to work reasonably well and enables the model to be sailed on any desired course from dead before the wind to " sharp-up," when she will lie somewhere near the traditional six points off the wind.

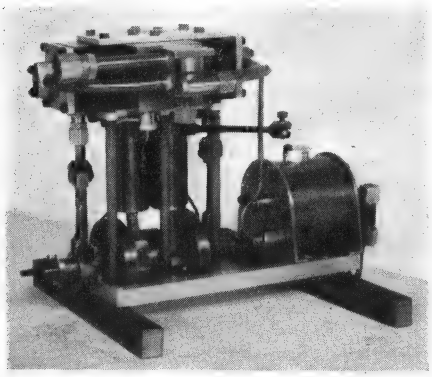
Another Marine Engine

made to his own design by

J. H. JEPSON

THE engine illustrated is my latest effort up to date, and has been built for a friend who is a fellow clubman.

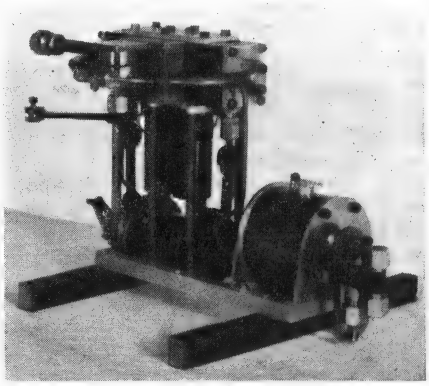
It is a twin cylinder $\frac{5}{8}$ in. × $\frac{5}{8}$ in. launch having a gear driven water pump and mechanical lubrication. The specification is as given by myself for a single cylinder engine in the issue for 24th April, 1947 of



The complete engine and gear box

The Model Engineer. Cylinder block and valve chests are of cast iron, pistons, valves, piston rod, cylinder, crosshead, big-end and main bearings of cast bronze, and base, cylinder covers and valve chest covers of duralumin. Eccentric straps, sheaves and connecting rod of mild-steel, case-hardened, all other steel parts blued by heating to colour and dropping in oil.

Gears for the water pump drive, oil pump and its worm drive are contained in a circular copper drum $1\frac{3}{4}$ in. diameter having brass ends, one of which is detachable and carries both pumps. The water pump is $\frac{3}{16}$ in. bore, $\frac{3}{8}$ in. stroke, operated by a banjo and geared 1 :$4\frac{1}{4}$ engine speed. The oscillating oil pump, $\frac{1}{8}$ in. bore and $\frac{1}{4}$ in. stroke, works at a little under 1-160 engine revs. and is to good old " L.B.S.C.'s " design, except that it is almost horizontal. The drum contains the steam cylinder oil too. All working parts of the engine are of generous proportions, thoroughly lubricated with two oil boxes, one each side of the cylinder block. These boxes are made from rectangular brass tubing $\frac{1}{2}$ in. × $1\frac{1}{4}$ in. and by fitting links under the lids, can be opened either side. The crankshaft is drilled to take oil from the main bearings to the big-ends and eccentric sheaves, oil being fed from the boxes to the mains by $\frac{1}{16}$ in. copper pipes with another short pipe to each crosshead. A throttle of the disc type is fitted in the inlet manifold and will be operated by a lever in the stern of the boat, into which the engine is being installed. On the lower half of the throttle is a check valve for the oil pump supply. Actual performance figures are not yet available, but under preliminary tests using air pressure at 150 lbs. the engine promises well. The total weight when finished is $2\frac{3}{4}$ lb. The whole job has taken much longer than I had hoped even though I received a lot of help [?] from my mechanically minded young daughter. Fond fathers should appreciate this. There have been times when I was really sick of seeing the engine, but now the job is done I am sorry to have it leave me. However, my reward is complete ; I have satisfied my friend and myself.



The engine from the gear box end

H.M.S. *HOOD*

an interesting model by an overseas reader

THE model of H.M.S. *Hood*, a photograph of which is reproduced above, was built by Mr. B. A. Carter, of Pietermaritzburg, Natal. The scale is 1/10 in. to 1 ft. and the overall length is 5 ft. 9 in. and the beam 9 in. Her builder writes :

" A brief description may be of interest to ship modellers. I was able to obtain from the Admiralty a full set of photostats of the original $\frac{1}{4}$ in. to 1 ft. drawing of the ship, reduced to 1/10 in. scale. From the half-sections I cut out the ribs in $\frac{1}{4}$ in. teak, and set them up along an ' H ' section keel. I plated the hull with galvanised iron. The only plates to run the full length of the hull are the top ones, about $2\frac{1}{2}$ in. wide ; the rest was plated in various lengths with buttstrips inside over the joints, and soldered up. She is a working model, a " Stuart " permanent magnet motor being fitted to each of the four shafts. These are driven by small accumulators which also supply current for the navigation lights, searchlights and internal lighting. The decks are of $\frac{1}{8}$ in. teak, the whole upper deck from ' B ' turret to the after end of the boat booms, lifts off in one piece to get at the ' works.' A problem arose as to the mainmast light, the ordinary ' pea ' bulb used elsewhere would obviously have been hopelessly out of scale outside the mast, and I eventually got an 18 mm. diameter bulb from Bond's soldered on the wires, and pushed it up inside the hollow mast till it registered with a slot cut in the mast. The whole lighting effect looks most realistic and attractive at night. Unfortunately, the life of these bulbs is comparatively short and they are now unobtainable, so there are ' blackouts ' here and there now. The anchor gear is complete and will work by hand, also the main derrick which is correctly rove and rigged. The photograph does not show up the full details, such as four-strand rails, minute ladders, every coal-chute, awning stanchions, etc. etc. ; believe me everything is there faithfully copied from the drawings ! She took me five years to build, was finished in 1939 and won a first and Special at that year's Royal Agricultural Show in Natal, which includes an Arts and Crafts Section. I started ship models during the 1914-1918 war while at sea (I am now a civil servant) and have built H.M.S. *Tiger*, *Calcutta*, and *Lion*. I aimed at realism in the ' finish ' and she has not that marvellous gloss finish of the *Queen Elizabeth*. I made all the parts with the exception of the studded anchor cable and flags. The photograph was taken by Mr. E. James, of Durban, on the pond in my garden."

* A Model Flemish Carrack

by C. M. MILLWARD

FOR the counter special timbers are required, shaped to the profile of the stern and stiffened by a knuckle timber at the level of the second wale. This frame is shown in Fig. 6. A timber is fitted at each quarter and another at each side of the rudder port.

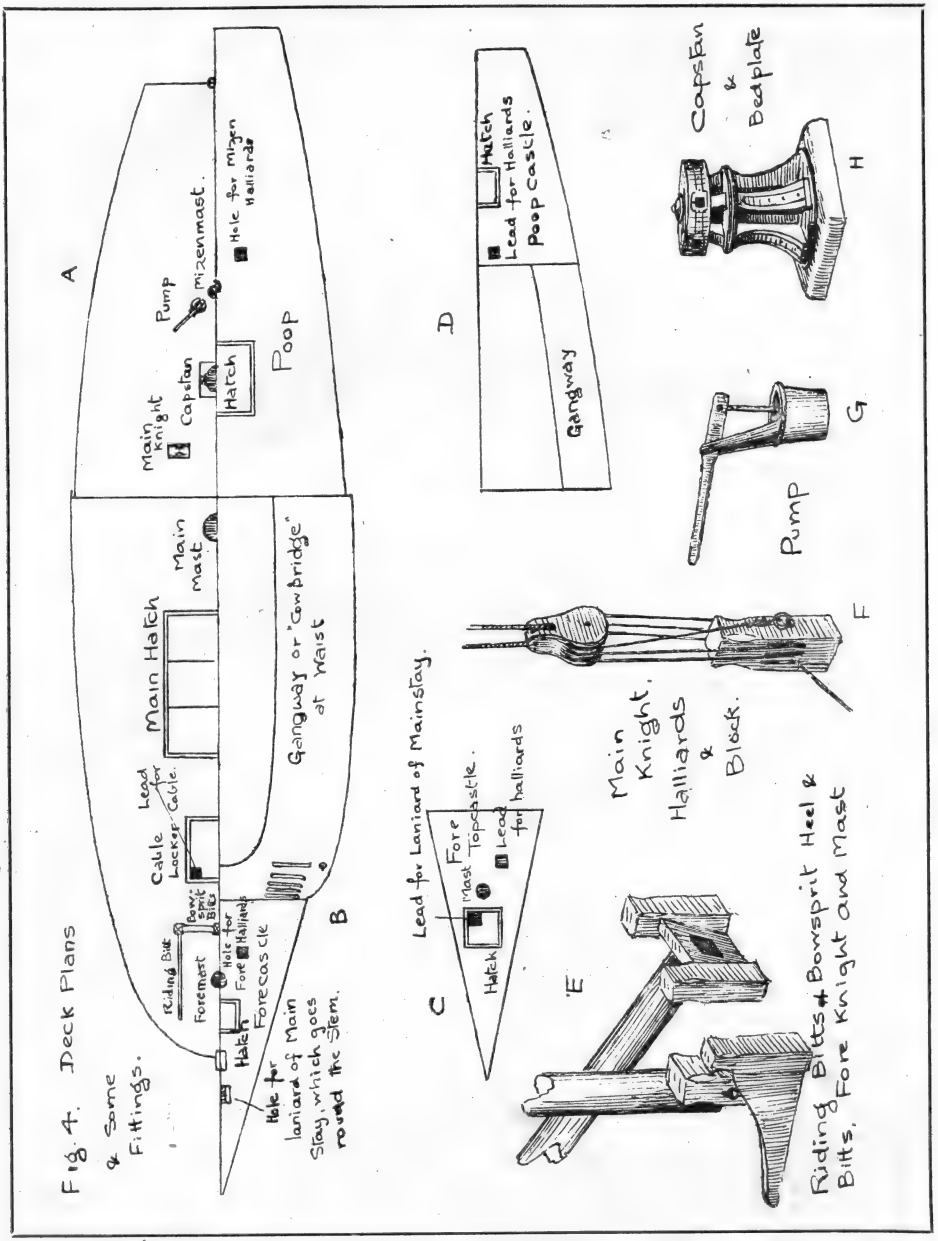
Having fitted the shelves the deck beams should be made and fitted, reaching from timber to timber right across the deck and fastened by a pin to the shelf. The aftermost beam of the forecastle fits inside the timbers ; but the remaining beams reach to the edge of the overhanging forecastle, and therefore must be notched into the planking and the Knee of the Head. At Section 9 two beams must be fitted, one at the level of the poop deck and one below it, at the level of the waist. The deck at the waist is in the form of two disconnected " corridors " running up forward into a curved bulkhead, the " cowbridgehead," following the profile of the Sheer Plan. Two stout " carlings " must be cut to this profile, to fit from the aftermost beam of the forecastle, aft to the lower beam at Section 9. These form the edges of the corridors, and short beams should be fitted between the carlings and the waist timbers, to support the latter. The position of the arch of the cowbridgehead is shown in the Deck Plan *B*, and a curved piece of wood should be notched across the carlings at this point. Another short length of deck would be fitted in the stern, at the level of the second wale, probably coming forward to the mizzen mast, to provide cabin space ; but as this cannot be seen it can well be omitted to simplify the construction.

Having completed the frame thus far the two upper wales can be pinned on to the timbers ; they should be about 16 in. square in the scale. They serve as guides to the planking. This is next put on—8 in. in thickness—and can be of any material suitable. Three-ply is handy and does not split ; in small models, however, good cardboard is quite suitable, being very easily worked. After fitting all the planking it should be rubbed down, with the rest of the hull, and the remaining wales pinned on. These will, of course, be made only half as thick as the two upper wales, so as to provide the same projection from the surface of the hull, and the middle wale should cover the line of the rabbet. Each wale is stiffened to the stem by a small knee fitted on each side, in the angle between stem and wale—see Fig. 5. When planking the poop the six shutters shown on the Sheer Plan should be cut out before fixing the plank ; these supply light and air to the cabin.

Before laying the upper decks the inside of the hull, together with all timbers and maindeck fittings, must be painted ; red is the universal colour, with the exception of the capstan which should be black. The decks should be merely oiled, and in painting the hatches, the coamings should be red and the covers natural oiled wood. There is no need to build up these hatches. A single piece of wood can be used, scribed round to mark the thickness of the coamings and also for the hatch covers, and painted carefully.

The upper decks can now be cut out and lined, and all hatches and other apertures cut as shown on the Deck Plan. The decks should be cut to fit tight against the insides of the timbers. The space between each timber should then be filled by slips of wood jammed down and level with the deck. The deck should be placed temporarily in position, the spaces between the timbers filled, and then the decks removed so that the pieces of wood can be painted red, to conform with the remainder of the bulwarks. These form " waterways " and also stiffen up the frames considerably. At the waist the procedure must differ slightly. The topmost wale should project above the timber-heads sufficiently to allow the deck-planking to lie upon the timber-heads and yet to be flush with the top of the wale. The filling pieces between the timber-heads fit down to the level of the timber-heads, and the actual planking goes in short lengths *athwartships*, flush with the wale and its inner ends pinned to the carling.

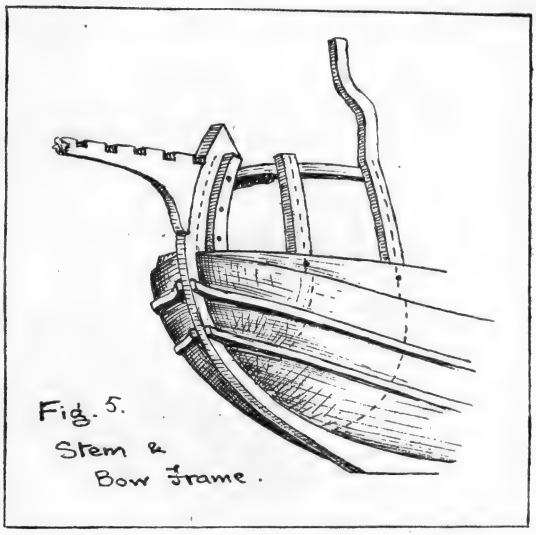
* Continued from December issue, page 189.



A bulkhead is fitted abaft the main-mast, to fill the space between the two beams at Section 9. This bulkhead is carried right up to the level of the bulwarks of the poop and a light capping rail is fitted to cover this and continues down either side of the poop and across the counter.

Before the decks of the forecastle and poop are finally pinned down, the three halliards should be rove, as it is impossible to get at the knights once the decks are on. The shape of the special blocks, together with the reeving of the main halliards, is shown at *F* in Fig. 4. The blocks of the fore and mizzen halliards have two sheaves, and the main, three, and in each case the knight has the same number of sheaves as the block. The halliard is hitched to the

ringbolt in the knight, and leads finally through the last sheave of the knight and is hitched about it. The apertures in the decks can be made large enough to allow the blocks to pass through ; the tackle should be long enough to allow the blocks to come halfway up the masts, assuming the yards to be slung in the position of harbour-stow depicted in the Sail Plan ; that is, about 20 ft. drift between block and knight at fore and mizzen and about 35 ft. at the main.



Before proceeding with the top-castles the remaining hull fittings can be finished. The hawses are supplied with stout reinforcements. To make these, drill a hole in the planking slightly smaller than the diameter of the complete reinforcement, and in a fore and aft tine ; this will make the hole slightly oval. Then take a length of dowel stick, and cut down a short length to form a tight fit in the hole in the planking. Then form on the other end a shoulder, as thick as the wales, so shaped that the plug of wood will lie in a fore and aft direction but that the shoulder will fit fairly between the wales and against the planking. Glue this plug in place and when set drill out the centre, fore and aft, shaping the lower edge of the lip with a slight roundness, where the cables would chafe. The inside of the hawse thus formed can be painted red.

At the break of the forecastle the hull is stiffened by small skids as shown on the Sheer Plan, these fit flush with the wales, and should be jammed between them and pinned. Another pair just abaft them are fitted in the same way and are drilled to provide leads for the main tacks, while withinboard a cleat should be pinned to a timber abaft each fairlead.

The five skids at the break of the poop notch over the wales ; their shape is shown on the right side of the Body Plan.

Immediately abaft the skids and hard down on top of the wales are the channels which can be seen in the Sheer Plan stretching aft to the foremost shutter. These channels should be about 4 ft. wide (in scale, of course), and notched on their outer edges for six deadeyes. When the plates of the deadeyes have been subsequently fixed in place a thin strip of wood is pinned on the outside of the channels to hold them in their notches.

The cargo ports on the quarters can, if left closed, be simply faked by scratching their shape on the hull and then fitting dummy hinges and ringbolts. If it is desired to leave one open, a deep recess should be cut in the hull and painted black. This should be filled almost entirely with cargo—say, barrels—and the two doors can be laid back against the hull, being held by their ringbolts. A small pin should be used for these ; first cut off the head, and then form a small eye in the end ; drive the pin through the door and into the hull, leaving only the eye projecting, and make a small wire ring to fit into the eye, hanging loosely down. These ports, when opened, should be red on their inner sides, as also should be the rims of the aperture.

Now the top castles are to be fitted. For the forward one, one pair of stanchions is already fitted, being the continuation of Frame 3. The two remaining pairs must be cut out, from the floor of the forecastle only, and mortised to the deck beams ; while the single one which fits fore and aft is mortised into the Knee of the Head. Then pin on the sides of the forecastle, having first drilled the arrow holes ; these sides should reach up to the underside of the top rails, which should be pinned to the stanchions and act as capping rails. The after side of the forecastle is also enclosed by a pierced breastwork ; but a small entrance should be cut at each side, down to the level of the middle rail, to provide access from the corridors in the waist. The lower and middle rails are then pinned on to complete this part.

(*To be continued*)

News from the Clubs

MODEL YACHTING ASSOCIATION

The A.G.M. of the Model Yachting Association was held on November 26th, 1949, at the Regent Street Polytechnic. Seventy delegates and club members attended, many having come from long distances, including Fleetwood, Birkenhead, Birmingham, East Anglia, Gosport and the South Coast.

Mr. A. W. Littlejohn was elected chairman for 1950, after having acted in that position since the retirement of Mr. Headlam last summer. He has been vice-chairman since 1932, so has the advantage of much experience. He is also an authority on model yachts, and one of the best known designers of these craft.

A highlight of the evening was the election of Admiral Alfred Turner as president of the M.Y.A. This high post has been vacant since 1938, when Mr. J. H. Scrutton died after serving from 1922. The gallant Admiral is such a well-known figure in the model yachting world, especially in connection with the origin and development of the "A" Class of models, that his appointment will give confidence and add prestige to our sport.

The new vice-chairman is Brig. F. R. Inglis, C.B.E. Hon. general and racing secretary is Mr. C. R. Seabrooke; hon. treasurer, Mr. L. S. Taylor; hon. publn. secretary, Mr. C. V. Hooper—as hitherto; hon. registrar, Mr. D. Maclean, of 24, Beresford Avenue, East Twickenham, Middlesex (in succession to Mr. Hatfield who retired for personal reasons after years of invaluable work for our Association).

Points of present importance:—Base of reaching jibs may be twice J (same as spinnakers). Foreign competitors are to be allowed to enter for M.Y.A. (British) Championships in all classes.

Venues of M.Y.A. National Championships for 1950 to be:—"A" Class, Gosport; 10-raters, Fleetwood; "M" Class, Hove (possibly September); 36 in. Class, Dovercourt, Harwich, Essex; 6 m. Port Glasgow, May 20th and 21st; 12 m., Saltcoats, August 12th or 19th.

THAMES SHIPLOVERS AND SHIP MODEL SOCIETY

The modelmakers' nights, which were introduced recently, are meeting with a considerable amount of success and promise to be an important feature of the club's activities. The first was held during October, when about 30 members attended, to hear a ship modellers' brains trust. The November night took the form of a talk by Mr. Norman Ough, whose practical hints based on his extensive experience as a modelmaker were greatly appreciated.

The ordinary meetings have been well up to standard and have had very appreciative audiences. The illustrated lecture on "Whaling" by Commander J. H. Craine ("Jason") on November 23rd, proved a very instructive and entertaining evening. The meeting on December 7th was held on board the *Wellington*, as the *Discovery* was not available, owing to the preparations for the exhibition illustrating South Polar Research. The subject of the lecture was "The Development of the Warship since Trafalgar." The first speaker was Mr. G. P. B. Naish, assistant director of the National Maritime Museum, who dealt with the subject up to the end of the sailing ship era. Mr. E. S. Gibbons, professor at the Naval College, Greenwich, then continued, describing how the development of the ship was influenced by the developments in both weapons and armour. The whole lecture was extremely interesting, showing the change over from sail to steam, from paddle to screw, from wood to iron, from coal to oil, and from broadside mounting of guns to turret mounting. The next meeting will be held on January 25th at Holborn Library.

THE NORTHERN ASSOCIATION OF MODEL ENGINEERS

The second Northern Models Exhibition will be held from March 24th to 26th, at the Corn and Produce Exchange, Hanging Ditch, Corporation Street, Manchester. The Exhibition will open daily from 11 a.m.-9 p.m., and charges for admission will be 1s. 6d., and for children 1s. The official opening ceremony is at 1 p.m. on Friday, 24th, and special arrangements for parties of children will be made for that day. Entry forms can be obtained from A. F. Stevenson, Esq., of 2, Newlands Drive, Prestwich, Nr. Manchester, a separate form for each entry being required. All forms must be returned not later than January 31st to Mr. Stevenson.

MORECAMBE AND DISTRICT MODEL YACHT AND POWER CLUB

The following is a summary of the results of Open Regattas sailed on the "Sandylands" Pool, Morecambe:-

The "Sandylands" Trophy, for 50/800 Class yachts, was raced for on Sunday, August 21st. 16 yachts took part, the final placings being:—

Lomond	... J. Catteral	...	Bury
Diane	... H. Whitworth	...	Morecambe
Scarlet	... E. L. Dawson	...	Fleetwood
Kimra	... E. J. Blackshaw	...	Birkenhead

The "Morecambe" Trophy. 14 "A" Class yachts entered for this on Sunday, October 2nd, with the following results:—

Susie II	... E. R. Eales	... ...	Barrow
Flame	... E. L. Dawson	...	Fleetwood
Diwali	... J. Jaffrey	... ...	Barrow
Chad	... A. Bimson	... ...	Accrington

The "Visitor" Trophy. 12 yachts of the 10-rater Class took part in this, on Sunday, October 16th, with the following final placings:—

Valkyrian	... T. Bradburn	... ...	Morecambe
Osiris	... K. Jones	... ...	Morecambe
Invicta	... E. L. Dawson	...	Fleetwood
Rivington Lass	J. Roberts	... ...	Bolton

The sailing water measures 735 ft. × 230 ft., with a prevailing S.W. wind, giving a beat a run. The lake is built up off shore level, but is also tidal, and improvements to it will be completed by the 1950 season. The Club hopes to have a boat-house adjoining the lake. A lakeside cafe enables competitors to have lunch and tea during regattas. The main-line station is Lancaster, and the lake is accessible by any bus to Battery, Heysham or Higher Heysham. Details may be obtained from the Hon. Secretary, K. JONES, Esq., "Meadowside," Carr Lane, Middleton, Nr. Morecambe.

BRIGHTON AND DISTRICT SOCIETY OF MODEL AND EXPERIMENTAL ENGINEERS

The recent meeting of this society, when Mr. G. H. Davies, the well-known marine artist of the *Illustrated London News* gave a talk on "The Model Shipwright," was a real marine evening. The talk was extremely interesting, and well illustrated by the club's episcope; several splendid models and "bits and pieces" were on the table for examination. In this talk Mr. Davies dealt with the history of the ship from the earliest times to the present day, and showed how important the model has always been and continues to be in shipbuilding. The occasion was honoured by the presence of Mr. Vanner of London, who brought along two splendid metal hulls which were greatly admired.

On November 7th, the Chairman, Mr. P. Weil, came forward most helpfully with only a few hours' notice, the arranged programme having been unavoidably cancelled, and provided the meeting with a most enjoyable evening. His subject was his steam-driven paddle boat which was present and waterborne in a large testing tank provided by Mr. G. H. Davies. Mr. Weil gave a very interesting talk on the building, and performance of his boat, after which he raised steam and she chugged merrily away in the tank. The removal of the superstructure so that the engines could be seen running was greatly appreciated by all. Mr. Weil is very anxious to enlarge the ship section of this society, which is still going all out to secure premises for the club equipment.

The Hon. Secretary is H. G. ACHARD, Esq., 48, Aldrington Avenue, Hove, Sussex.

CAMBRIDGE AND DISTRICT MODEL ENGINEERING SOCIETY

At the recent exhibition of this society, which was held in the Co-operative Hall, Burleigh Street, Cambridge, the exhibits included a number of very interesting marine models. A notable group of model steamers was entered by Mr. A. G. Smith. In each case these were steam-driven, and in spite of the fact that he is now in his 70's, Mr. Smith is busy at the moment on the designs for his next model. As might be expected in a district which still builds river craft, there were some excellent examples of boat building, particularly the 21 ft. "Runabout" built to 1½ in. scale, and the 40 ft. sea-going cruiser built to 1 in. scale, both by Mr. C. H. Harris. Mr. Harris who is 76 years of age was a professional boat builder and his models were superb examples in miniature of his craft. His 40 ft. cruiser won the premier award in the marine section. The exhibition was opened by the Mayor of Cambridge, supported by the president of the club, Alderman H. C. Banham.

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Notices

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All correspondence relating to sales of the paper should be addressed to THE SALES MANAGER and correspondence relating to display advertisements to THE ADVERTISEMENT MANAGER.

"Model Ships and Power Boats" is published by PERCIVAL MARSHALL AND CO. LTD., at 23, Great Queen Street, London, W.C.2, on the first day of each month. Price 6d. Annual subscription, post free, 7s. 6d.

Printed in Great Britain for the Proprietors by ELECTRICAL PRESS LTD., Cordwallis Works, Maidenhead, Berks, and published by PERCIVAL MARSHALL & Co. LTD., 23, Great Queen Street, London, W.C.2.